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MEMO TO: Ron Solimon, Pueblo of Laguna
Pat Wise, Pueblo of Laguna
Frank Jones, Bureau of Indian Affairs
Marc Nelson, US Geological Survey

Confidential Claim Retracted

Authorized by: SE

Date: 4/25/13

FROM: Hydro Geo Chem, Inc.

SUBJECT: Progress of Work on Pueblo of Laguna; March 1981

All of the data that will be put in the Phase 1 report has now been collected. Most of the work this month has been devoted to reducing the rest of the data and writing the report.

The report is nearly complete; it is behind schedule about three weeks, due mostly to underestimating the number of figures and maps needed. The amount of drafting time was also underestimated. We estimate that the report will be completed for review in about three more weeks.

Hydrogeology: Other progress made this month was in three areas. The first was in developing a general equation describing the drawdown from mine dewatering. It has the form of an unsteady state, confined-unconfined flow equation. The effect of expanding mine drifts will be handled by either finding an equivalent well radius, or by adjusting the unconfined storage coefficient.

The second area was in estimating the flux through the Rio Puerco Fault Belt. A chloride balance suggests that the ratio of horizontal to vertical flow is 5:1. This value for leakage will be used initially in the steady state simulations to see if the computations are reasonable.

The third area was in isotopic analysis. Problems in calculating the in situ carbon-14 production in aquifers have now been worked out. We plan to collect 3-4 water samples for carbon-14 analysis in about one



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month. Two samples will be from wells and two from springs. We may have to delay the spring collections until runoff in the Cañon Salado has ceased.

We will also collect a few samples in the Rio Paguete to analyze for sulfur isotopes. The isotopic ratios should show the exact sources of sulfate in the stream.

Numerical modeling: Modification of the steady state grid to include the Bluff Sandstone were made. The model now contains five layers. The node spacing varies from about 1 km in the vicinity of the Pueblo, to approximately 20 km in the NE corner of the basin.